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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/667,576	09/22/2000	Tetsufumi Tsuzaki	50212-132	7978

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MCDERMOTT WILL & EMERY LLP
600 13TH STREET, N.W.
WASHINGTON, DC 20005-3096

EXAMINER

HUGHES, DEANDRA M

ART UNIT PAPER NUMBER

3663

DATE MAILED: 07/20/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/667,576

Applicant(s)

TSUZAKI ET AL.

Examiner

Deandra M Hughes

Art Unit

3663

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 3/31/04.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-31 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 27 and 28 is/are allowed.
- 6) ☒ Claim(s) 1,3,5-8,14,16,18-21 and 29-31 is/are rejected.
- 7) ☒ Claim(s) 2,4,9-13,15,17 and 22-26 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date Jan. 7, 2004.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

2. Claims 14, 16, and 18-21 are rejected under 35 U.S.C. 102(b) as being anticipated by Sugaya (US 5,812,710).

With regard to claim 14, fig. 27B of Sugaya discloses:

- guiding the multiplexed light (MULTIWAVELENGTH LIGHT) signal to an optical waveguide doped (5 contains optical fiber) with a fluorescent material (Erbium) together with predetermined optical pumping light (6 - 980nm) and optically amplifying the multiplexed light;
- guiding the multiplexed signal light channels to an optical filter (302) capable of changing a gradient $dL/d\lambda$ of a loss with respect to wavelength in the predetermined wavelength band and controlling the gradient of the optical filter so as to flatten the wavelength dependence of light power obtained by said optical amplifying method and (col. 20);
- controlling an intensity of the optical pumping light (via 8) to keep the total power of multiplexed signal light obtained by said optical amplifying method at predetermined level (col. 20).

With regard to claim 16, an equalizing optical amplifier may be used (col. 20, line 6).

With regard to claim 18, the gradient may be adjusted before (fig. 27A) or after amplification (fig. 27B).

With regard to claim 19, AGC circuits are disclosed (fig. 30, 12).

With regard to claims 20-21, the gain gradients are disclosed (fig. 3).

Claim Rejections - 35 USC § 103

3. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
4. Claims 1, 3, 5-8, and 29-31 are rejected under 35 U.S.C. 103(a) as being unpatentable over figure 23 of Sugaya (US 5,812,710 published Sept. 22, 1998) in view of figure 27A of the same patent publication, i.e. Sugaya (US 5,812,710).

With regard to claim 1, Sugaya discloses:

- one or a plurality of optical amplification sections (fig. 23, 121, 122, 123) each of which has an optical waveguide doped with a fluorescent material (Erbium; col. 1, line 46) and amplifies the multiplexed light by optical pumping of the fluorescent material (via 124-126);
- optical pumping light sources for supplying predetermined optical pumping light to said optical amplification sections (124-126);
- an optical filter (11) capable of changing a gradient $dL/d\lambda$ of a loss L (dB) with respect to a wavelength in the predetermined wavelength band (C-band; col. 1, line 44) in response to a change of the gain wavelength dependence in the optical amplification section;

Art Unit: 3663

- control means (127) for controlling each optical pumping light output from said optical pumping light sources as to keep the total power of light output from said optical amplifier at predetermined level (e.g. col. 2, lines 30-34).

Fig. 23 of Sugaya does not specifically disclose that the control means, 127, controls the gradient $dL/d\lambda$ of said optical filter so as to flatten the wavelength dependence of light power output from said optical amplifier. However, fig. 27A teaches a control unit (4) that controls both the pump light sources (3) and the optical level adjusting unit (301; attenuators impart loss to control the optical power level). It would have been obvious to one of ordinary skill in the art (e.g., an optical engineer) to use a single control unit (4) to control both the pump power source and the attenuator for the advantage of modularity (see col. 20, lines 45-52).

With regard to claims 3, 29, and 31, the attenuator can be replaced with a gain equalizing amplifier (col. 20, line 7).

With regard to claim 5, the power detectors are the photodiodes (fig. 23, 113).

With regard to claim 6, AGC circuits are disclosed (fig. 30, 12).

With regard to claim 7, the gain gradients are disclosed (fig. 3).

With regard to claim 8, the means for reading information are the photodiodes (fig. 23, 113).

With regard to claim 30, the C-band is greater than 20nm.

Allowable Subject Matter

3. Claims 27-28 are allowed.

Art Unit: 3663

4. Claims 2, 4, 9-13, 15, 17, 22-26 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Deandra M Hughes whose telephone number is 703-306-4175. The examiner can normally be reached on M-F, 8:30am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas H Tarcza can be reached on 703-306-4171. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


DMH

MARK HELLNER
PRIMARY EXAMINER

